

Polymer Matrix Composite Materials for Lightning Strike Mitigation, Phase I

Completed Technology Project (2007 - 2007)



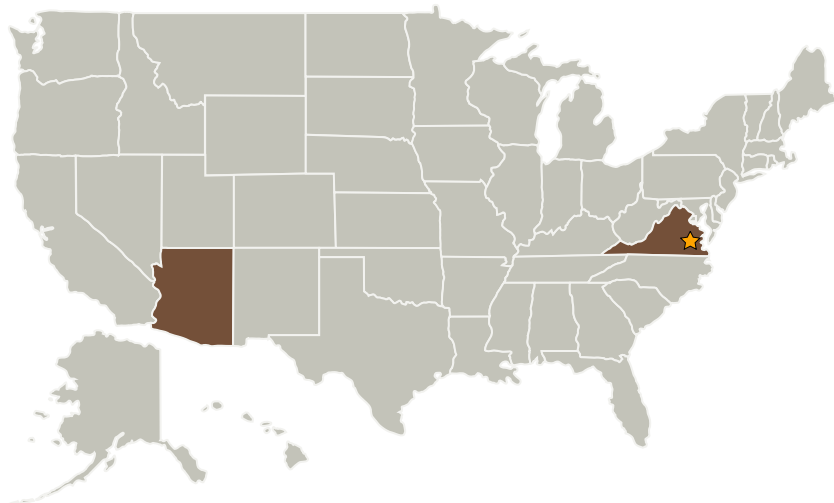
Project Introduction

In this phase I SBIR program, a team led by Advanced Ceramics Research Inc. (ACR) propose a novel, low-cost manufacturing process for multi-functional polymer composite components with improved lightning strike mitigation and EMI shielding capabilities. The proposed program will develop and demonstrate a process for manufacturing complex-geometry composite parts with tailored lightning strike mitigation capability based on design requirements. This process is a natural extension of the ACR water-soluble tooling process for fabricating complex-geometry polymer composite parts as well as filament wound composite tanks. For the proposed phase I program, the ACR-led team will use a novel process to create a highly conductive surface capable of providing the necessary lightning strike protection and EMI shielding. The ACR team will evaluate the new approach with two different space qualified matrix polymers with graphite fibers and compare the surface conductivity with baseline composite systems.

Anticipated Benefits

The technology could be used by commercial aircraft manufacturers as well as military contractors.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Advanced Ceramics Research, Inc.	Supporting Organization	Industry	Tucson, Arizona

Primary U.S. Work Locations	
Arizona	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Project Manager:

Peter T Lillehei

Principal Investigator:

Ranji Vaidyanathan

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
 - └ TX13.1 Infrastructure Optimization
 - └ TX13.1.7 Impact/Damage/Radiation Resistant Systems